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Appendix I.

[Vide answer to question No. 687 asked by Mr. G. Simhachalam Pantulu at the meeting of the Legislative Council held on the 24th February 1934, page 187 supra.]

Statement showing the number of Andhras in service in the Secretariat and certain offices referred to in Legislative Council question No. 687.

—	Superintendents' posts sanctioned cadre.	Number of Andhras.	Upper and lower division clerks sanctioned.	Number of Andhras.
1 Board of Revenue	13	Nil.	95	4
2 Chief Engineer, Public Works Department	10	Nil.	59	3
3 Inspector of Local Boards	1	Nil.	28	8
4 Inspector-General of Police	8	Nil.	48	6
5 Government Secretariats	50	2	225	19

Appendix II.

[Vide item III—Papers laid on the table of the House at page 247 supra.]

G.O. No. 43 I., 5th January 1934.

Read—the following papers:—

I

G.O. No. 1036 I., dated 26th March 1929.

II

Reference from the Irrigation Development Board, No. I.D.B. 418/33-1, dated 30th November 1933.

The Hon'ble Mr. C. A. Souter, C.S.I., I.C.S.,
President.

Read—the following:—

Reference from the Board of Revenue (Land Revenue and Settlement), No. H. 6641/33-1, dated 13th November 1933.

J. F. Hall, Esq., C.I.E., O.B.E., I.C.S.,
Commissioner of Land Revenue and Settlement.

Read—the following:—

(i)

G.O. No. 1523 I., dated the 12th July 1933.

(ii)

Letter from M.R.Ry. Diwan Bahadur N. Swaminatha Ayyar Avargal, B.A., B.E., Chief Engineer for Irrigation, Madras, dated the 16th October 1933, No. 2030/33-C-1.

The scheme is to build an anicut across the Kandaleru River in Vinukonda taluk, Guntur district, to augment supply to the Dondapad, Nadigedda and Koppukonda tanks through the Kanamala cheruvu for

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bringing under cultivation about 1,500 acres. Gaugings of the river were ordered to be taken for three years from 1929 to 1931 in G.O. No. 1036 I., dated 26th March 1929, in order to examine the quantity of supply available. Gaugings and also certain velocity observations with soundings of the river were taken and proposals were formulated. The Executive Engineer's report discusses the several proposals and Superintending Engineer's observations thereon are contained in his letter No. 447 I., dated 31st August 1933 (copies enclosed).

2. As regards the formation of a storage reservoir, the Superintending Engineer is of opinion that since the greater part of the run-off occurs only after September, it is not advantageous to have a reservoir, as the ryots do not cultivate paddy, if the storage is received so late in the season. Various other alternative schemes have also been considered but have to be given up, as they further necessitate taking channels in very deep cutting.

3. It is reported that the only feasible scheme is for a small channel taking off from an anicut at Gutlapalli in Pedda Kandaleru for irrigating 300 acres.

4. From the reports received, it is clear that no reservoir scheme will be feasible for the main reason that the ryots are not in favour of growing paddy after September. I agree with the Superintending Engineer in considering that the small direct supply scheme referred to in paragraph 3 above is the only one that can be investigated further. But as the scope of such a scheme will be very limited, I consider it not worthwhile pursuing it at all. In the circumstances I consider that all further investigations of the schemes considered in this connexion should be dropped.

ENCLOSURE.

Letter from M.R.Ry. Rao Bahadur R. NARASIMHA AYYANGAR Avargal, Superintending Engineer, Bezwada Circle, to the Chief Engineer for Irrigation, dated Bezwada, the 31st August 1933, No. 447 I.

[Projects—Guntur—Kandaleru Project—Gauging observations for 1929, 1930 and 1931—Report on the —.]

In continuation of this office No. 201 I., dated 26th May 1932, I submit herewith a register showing the gauge observations for the Kandaleru, the rainfall of the temporary gauge fixed at the site of the gauging observations and cross sections of the stream at the gauging site (G. No. 126/32).

2. During the 1931 observations the overseer in charge had taken at intervals certain velocity observations with surface floats and he had also taken at the same time soundings of the stream. Thus we have got a record of velocity observations for the year 1931 for various stages of flow in the stream at the gauging site near Palukur. I consider that with this information available for us, it would be better to depend upon the figures of discharges as calculated from these than upon figures of

discharges as calculated from the sections of the stream at the sites of the gauges and the surface fall obtaining these. If we had no information about the velocities in the stream and the depths during periods of observation we would have had to depend only on the discharges as worked out from the readings on the gauges at the sites of the cross sections. Even then there would have been the difficulty of applying a suitable value for " N " in Kutter's formula. From the cross sections taken at the end of the season in 1931 (G. No. 126/32), it will be seen that even when with little or no flow there are considerable areas below the water level and where the stream divides off into two small branches owing to an intervening shoal the level in one branch is different from the water level in the other branch. These as well as the longitudinal section of the stream given in C. No. 65/33 would indicate that there are some rapids and pools in the stream which would vitiate our calculations of discharges from the areas of the sections and observed falls between gauges. For these reasons I have not attempted to work out the calculations on the basis of the falls observed with the gauges; but from the actual velocity observations a diagram has been drawn giving the discharges at various depths on the centre gauge at Palukur gauging site. From this discharge curve and the actual readings observed from day to day at the centre gauge the discharges in the stream have been worked out and the quantity available for storage.

3. This curve of discharge has been adopted for the observations made of the gauge readings during the years 1929 and 1930 also and fresh statements of discharges have also been prepared for these years.

4. It must be pointed out as in the case of the Mellavagu discharges that for a reading of 0-0 the discharge is only about 15 cusecs and for lower readings on the centre gauge the discharge is very small being practically negligible. In the original register of gauge readings such readings as give a discharge of about 15 cusecs have been noted as 0-0 whereas when the water level fell below and the discharge was practically nil, an entry ' Nil ' has been made against the centre gauge.

5. The total quantity available for storage during the years 1929, 1930 and 1931 would come to about 238, 1,128 and 709 millions of cubic feet, respectively. The year 1929 was a year of bad rainfall. The year 1930 may be taken to be one of average rainfall and though the year 1931 was a year of more than average rainfall at other stations, such as Macherla, Narasaraopet, etc., the rainfall at Palukur from June to December was only 24·95 inches during the year 1931 as against 24·30 inches during the year 1930. However owing to the very heavy rainfall that obtained in October 1930, the total run-off during the year 1930 is much greater than the total run-off during the year 1931.

6. I enclose herewith a copy of letter No. 158-S.E., dated 9th May 1931, from the Executive Engineer, Guntur Division, Mr. K. V. Sankara Ayyar, together with a note written by him at that time on the prospects of the Kandaleru Project together with his recommendations. I have

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inspected the locality and agree in the main with the Executive Engineer's views that the rainfall within the basin of the Kandaleru is likely to be scantier than outside this area. In this connexion the Government of India contour map may also be referred to.

7. The report is admittedly only a preliminary one discussing the feasibility of various alignments and the estimates and designs have not therefore been scrutinized in detail, except for checking the correctness of arithmetical calculations. The Executive Engineer makes out a case for an anicut and supply channel from the Kandaleru to the Dondapad tank to be treated mainly as an unproductive or protective work. In a locality like this with very little irrigation the question of adequate return from a financial point of view should not stand in the way.

8. I agree with the Executive Engineer, in considering that the Kandaleru scheme will not affect the Gundlacamma Project to any extent. Even for the direct channel scheme the maximum discharge tapped will be about 50 cusecs when the river is in flood and this is negligible. Further the Dondapad and other tanks through which the supply channel will run eventually drain into the Gundlacamma valley. Hence even a storage scheme will simply tend to store a portion of the water that the Gundlacamma scheme can amply spare, and to give out a share of this as subsoil flow from the ayacut under it later on.

9. The Executive Engineer's report was written in 1931 before the observations of that year were started. But the gaugings of 1931 only confirm the views already expressed by the Executive Engineer in his report.

10. The catchment of the Kandaleru below the junction of the China and Peda Kandaleru is about 190 square miles. But it will be seen that the total run-off during the year 1931 with a slightly higher rainfall than the average comes to only 709 millions of cubic feet. From the fact that a greater part of the run-off occurs only after September it does not appear advantageous to have a storage reservoir, as in the district, the ryots do not grow a paddy crop if the storage occurs late in the year. If the storage is realized before the end of August they go in for paddy cultivation otherwise they would rather leave the lands waste than grow a late paddy crop. From this point of view, it would appear that the proposal for a reservoir will have to be given up without taking the trouble of examining whether there is suitable site for the formation of a reservoir, either a masonry one or an earthen one with a central masonry dam at the river crossing. A reservoir if it is to be formed should be formed below the junction of the Chinakandaleru and the Pedakandaleru near Palukur and even then if the main idea is to supply the Dondapad tank valley from here a considerable portion of the storage is not likely to be utilized on account of the high level of the ridge through which a cutting will have to be effected near H-3—vide tracing G. No. 44/31. There is also the difficulty about submerging Agraharam lands referred to by the Executive Engineer in his report though it is a minor one.

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11. There is also the other alternative of simply forming a reservoir on the Kandaleru and irrigating lands below the reservoir. With a 700 millions of cubic feet of available storage the maximum area irrigable would come to about 3,500 acres with the prospect of failure in one out of three years or so. We can no doubt find the 3,500 acres in the Kandaleru valley itself on its left side before it joins the Gundlacamma River but whether it will be a paying proposition and whether the ryots will be prepared to cultivate with paddy provided water is supplied from September onwards is very doubtful.

12. On the whole, the small direct supply scheme suggested by the Executive Engineer is the only thing that, I think, can be investigated further. If an anicut is built near Guntlapalli we can, if necessary, divert the waters of the Chinakandaleru also into this by means of an anicut across the Chinakandaleru somewhere above V—vide tracing G. No. 44/31 and a channel taken right across from that point to G. This is however a matter for later consideration, if we want to augment the supply received from the Pedakandaleru itself. As pointed out by the Executive Engineer, it is out of the question in this difficult country with the very unsteady flow in the Kandaleru coming down in floods only on five or six occasions during the monsoon season, to have a large capacity supply channel for taking water from the Kandaleru to the Kopukonda tank and thence to the Dondapad tank.

13. A gauge has been read on the Pedakandaleru also at the site shown in G. No. 65/33, and on the survey plan No. 3 of the river Kandaleru and the readings on this are noted in the combined gauge register for the three years. From the occasional velocity observations taken at this site during 1931, a discharge curve has been drawn and the quantities available for storage from the flow in the Pedakandaleru alone have also been worked out and noted in the discharge registers.

Sub-enclosure.

Kandaleru Project.

As water was seen flowing throughout the cultivation season in the Kandaleru the proposal to feed the Dondapad tank from it suggested itself. Except for stray small extents of lift irrigation, no irrigation under the Kandaleru is seen down to its junction with the Gundlacamma. The river-bed from Gutlapalli down to Ganesapalem consists of pebbles and sand with outcrops of rock. The flow is a series of pools and bars. Under pools, irrigation of garden crops from Sultan wells about 20 feet deep is being carried on near village-site by mhote.

2. There is a continuous range of hills H, H-1, H-2, H-3, H-4 and H-5 running north to south nearly parallel to the river about 3 miles from it. It is watershed dividing the Kandaleru and the basins to the east of it. The basin next east is that of the Koppukonda tank and next to this lies the Dondapad tank. The watershed K-1, K-2 between Koppukonda and Dondapad tank basins is another continuous range of hills

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running north to south. The eastern boundary D-1, D-2 of the Dondapad basin is also a continuous hill range, which eventually ends at the Kistna north of Chintapalli (160' 45' and 800 10').

3. The river margin near Ganesapalem is nearly at the F.T.L. of the Dondapad tank. So from here upstream several lines for a channel to the Dondapad tank were tried.

4. Now taking the Ganesapalem line W.H.-1 (G. No. 44/31) which is the most direct (please see also the L.S.G. No. 47/31). This has to cross the main watershed at the saddle H-1 (G. No. 44/31) or II on the L.S., a mile east of the Koppukonda village. The lowest point here is 73·20 and this cutting for nearly 2 miles is unavoidable, because near Ganesapalem the bed of the Kandaleru is 18–40 and the surplus weir of the Dondapad tank is 25·00. Besides this cutting, we have the spur No. 1 (vide L.S.G. No. 47/31) which is also a rocky barren waste, with only brush grass. This, however, can be avoided or minimized by skirting it to the south on contour. At III is the valley forming the ayacut under the Koppukonda tank. Crossing this in embankment will be prohibitive in cost, and with a level crossing the channel will become too low to enter the bed of the Dondapad tank. It can, at the most, supply only the sluice channel L.S.T. So, this line can be used only for a continuous flow channel. It has moreover to cross nearly five valleys on the way which contain minor tanks with irrigation under them. This means that the water will be abstracted by these tanks leaving very little to reach Dondapad. The formation of a reservoir at any site above Ganesapalem is precluded by the fact that the villages on the right side of the river are all Agraharams. So, this line may be left out of consideration.

5. Next comes the open country on the left of the Kandaleru between the Koppukonda and Bollapalli reserves from which any channel has perforce to cross the main ridge. The lowest saddle in this watershed line is H-3 near Kanumala cheruvu. Three lines of levels were taken towards H-3 as marked on the map (G. No. 44/31) from suitable points J.P.R. on the Kandaleru.

J from the junction of Pedda and China Kandaleru.

P from Palukur.

R round Ramapuram.

All these three have only one outlet to the east, viz., the Kanumala cheruvu saddle H-3. The highest point in this saddle is 123·00 near the junction of the reserve lines.

6. The line R H-3 skirting the south of the low spur H-4 Y is very low and is 30 to 40 feet lower than the unavoidable saddle H-3. This was the line suggested by the Executive Engineer, Mr. K. Srinivasa Ayyangar, during his inspection, dated 18th August 1929—No. 444-G., dated 23rd August 1929. Obviously this line cannot be cheaper and may be left out of account.

7. As our object should be to minimize the cutting at H-3, the channel above it should be taken at as high a level as possible to suit the saddle crossing. So the line P H-3 may also be left out. Though more direct and shorter, it has more ups and downs and runs through dry fields, the acquisition of which will be costlier than the upper line J H-3 which skirts the reserved forest.

8. Thus the problem reduces to taking a contour channel from H-3 towards the junction of the streams China Kandaleru and Pedda Kandaleru. Here the low rocky spur H-4 M.N.J., called the 'Malabodu' reaches down to the very margin of the Kandaleru. The bed of the river at the junction is at 78·00 and the country on the left at about 100·00. These levels will still necessitate deep cutting through H-3. Any means of raising the water level at the junction will submerge Agraharam lands. So, we have to give up the direct line J H-3.

9. Proceeding further up, we meet with a natural rocky barrier across the river-bed opposite to Gutlapalli (Government village). The bed of the river here is about 113·00, i.e., only about 10 feet lower than the saddle H-3. Levels were also taken for a shorter direct line from Gutlapalli over a saddle M in the Malabodu on towards H-3 but the level at this saddle crossing (M) was found too high and the soil being rock, this line too was abandoned. The only feasible line of channel is therefore (G N H-3) from Gutlapalli to the south, rounding the nose N of the Malabodu opposite J and taken thence on a contour towards H-3.

10. Below the saddle H-3 the channel enters the tank Kanumala cheruvu at its right flank. The surplus and field drainage from this tank finds its way to the Koppukonda tank. This tank has a masonry weir at its left flank. From below this weir, an attempt to take a portion of the surplus by a contour channel to the Dondapad tank is seen to have been made in the past. The bank of the channel lies for about a mile from the weir in the reserve forest and it is breached in places and neglected. This channel has to be revived, if water is to be taken to the Dondapad tank. Levels permit of this.

11. I inspected this final line G N H-3 along which levels had been taken (please see L.S.G. No. 47/31). The cuttings marked I and II being close to the river are unavoidable. At III (N on the map) the line of levels runs straight over the Malabodu spur. The alignment here can be swerved to the west so as to skirt the spur and avoid the deep rocky cutting III seen on the L.S.

The cuttings at IV, VI, VII and VIII can also be avoided by a slight shifting of the line, to the south as the country has a gentle fall, in that direction. The valley V is that of the Palukur tank. Here the channel can be taken by letting it into the tank and strengthening and raising the tank-bund or by taking it along its foreshore.

The cutting IX (H-3 on the map) for a distance of about one mile is inevitable. The soil here is rocky. A rough estimate on the assumption that contour channel modified as above is chosen, is enclosed. The cost works out to Rs. 58,000.

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12. Now the line for the channel being thus fixed up, the next question is whether it is to take off from an anicut or a reservoir. A reservoir is left out of account as it will submerge villages and cultivated land which lie close to the river margin. Moreover, a tank, by bunding up the Pedda Kandaleru or China Kandaleru will be costly and may after all prove only another Dondapad Tank Project. I mean that the cost will, as explained below, be too prohibitive for the storage that can be got from the catchment.

13. As has been observed (Irrigation Chief Engineer's Memorandum No. 718/28-C-3, dated 9th July 1928, sent with Superintending Engineer's No. 1448-E., dated 17th July 1928), the basin of the Dondapad tank is surrounded on all sides by hills and therefore gets very little rain during either of the monsoons. The catchment of the Kandaleru too is, as the map will show, in the same boat as the Dondapad basin and perhaps worse. The several ranges of hills on both sides of the river all run north to south and thus serve to cut out the free ingress of the monsoon clouds, especially in the north-east monsoon season which gives a better rainfall in this district. The south-west monsoon clouds from the Kurnool district rarely pass beyond Markapur or Thokapalli. It is a fact that the Kandaleru, the Santhamagalur vagu and the Ogeru whose catchments lie to the east of the range of hills running from Vinukonda towards Ipur, Nekarikal, Bellamkonda and Chintapalli have a larger and more reliable and continued flow than the Pasupaleru, which is the valley of the Dondapad tank. The difference can be markedly seen by one travelling on the road from Guntur to Vinukonda and Tangirala. The actual irrigation (part of this only irrigated dry crop) for the Dondapad catchment of 56 square miles is about 250 acres, i.e., about 5 acres per square mile, though the tank has surplussed only once since its construction. For the Koppukonda tank which is in the valley next west of the Dondapad tank with a total catchment of 21·3 square miles, the ayacut is only about 94 acres. This is also less than 5 acres per square mile. The Nadigedda tank lower down this valley has a total catchment of 29·6 square miles and ayacut of 97 acres, i.e., about 3 acres per square mile. It is therefore too much to expect 8,750 acres to be irrigated by the catchment of 190 square miles of the Kandaleru below the junction J (please see the note of Mr. N. Govindaraja Ayyangar, dated 24th July 1928—681 S.E./29th August 1928).

Thus the idea of forming a reservoir across the Pedda or China Kandaleru may be dropped, at least for the present.

14. Another alternative will be a flood supply channel to fill the Dondapad tank during floods in the Kandaleru. This will have to be very large in section as the available number of flood days will be very few (less than ten days on the whole) in a year. It will run through rugged country, cut up by ravines and forests. The risks are great of the waterway of such a channel, with intermittent flow, getting suddenly blocked up or restricted by sand and stones brought down by cross drainages and by trees or branches falling across its waterway. It will be too much to expect proper maintenance by prompt kudimaramat of

such a channel in working order by the present day ryots, especially seeing that the nearer end of the channel will be about 8 miles from the ayacut villages, and all this distance will have to be walked through along forest tracks, as there is no road or obstacle-free cart-track here. So, a small channel to carry the available long continued low flow is the Kandaleru taken off from an anicut, near Gutlapalli seems to be the only feasible proposition.

15. This channel will run on contour between Palukur and Kanumala cheruvu. Being small, it can be easily watched by the ryots. There is of course the probability of the flow in it being tapped for irrigation under the small tanks or cultivate lands on the way, in the open tract round Palukur and Ramapuram villages. Besides this, the Kanumala cheruvu and Koppukonda tanks also through which this water has to pass may use up the water for increasing their ayacuts. Though the water from the Kandaleru may not finally reach the Dondapad tank, it will at least improve existing minor tanks and develop irrigation on the way. The scheme can therefore be looked upon as a method of utilizing the available supply in the Kandaleru for irrigation, leaving aside the idea of augmenting the supply to the Dondapad tank. Of course, an alternative of giving loans to the riverside ryots of the Kandaleru to enable them to make a fuller use of the water by more extensive life operations, suggests itself for consideration.

16. The diagram of water readings (G. No. 48/31) shows that a continuous spring flow will be available throughout the irrigation season. What the exact quantity will be, that will become available in the proper season for use of crops, it is not possible to exactly say now, without further actual experience. Much depends upon the soil and the efforts of the people in looking after the channel and using the water without waste. The soil and subsoil along the line of channel are soft disintegrated fissured rock. As the fissures get staunched in course of time, the supply by the channel will increase. A channel like this will not apparently affect the prospective Gundlacamma Reservoir Project and so the scheme need not wait for the result of this project (paragraph 4 of Irrigation Chief Engineer's Memorandum No. 718, dated 9th July 1928). When this channel eventually proves a success, an additional supply to it can be given by another channel V.G. (see L.S.G. No. 47/31), diverted from the China Kandaleru by an anicut at V near the place called Tallagatla crossing opposite Rentapalli where the vague has a rocky bed.

Reference—No. H. 6641/33-1, dated 13th November 1933.

Submitted to the Government through the Irrigation Development Board.

2. The Board agrees with the Chief Engineer for Irrigation that the further investigation of the scheme may be dropped.

M. K. Vellodi,
Joint Secretary.

To the Secretary to Government, Public Works and Labour Department, through the Irrigation Development Board.

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Reference—No. I.D.B. 418/33-1, *dated* 30th *November* 1933.

Submitted to the Government.

2. The Irrigation Development Board supports the proposal to drop the scheme.

M. K. VELLODI,
Secretary.

To the Secretary to Government, Public Works and Labour Department.

Order—No. 43 I., dated 5th January 1934.

In the circumstances stated by the Chief Engineer for Irrigation, the Government accept the proposal that the further investigation of the Kandaleru scheme, Guntur district, be dropped.

(By order of the Governor in Council)

N. GOPALASWAMI,
Secretary to Government.

To the Chief Engineer for Irrigation.
,, Board of Revenue.
,, Irrigation Development Board.
,, Secretary, Legislative Council, with 175 copies.

TRUTH ALONE TRIUMPHS